



PATENT
450117-02372

#9 CM
7.17-03

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : Besma Kraiem
Serial No. : 09/482,769
For : QUASI-DIFFERENTIAL MODULATION/DEMODULATION
METHOD FOR MULTI-AMPLITUDE DIGITAL
MODULATED SIGNALS AND OFDM SYSTEM
Filed : January 13, 2000
Examiner : Guillermo Munoz
Art Unit : 2634

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Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on July 9,
2003

Glenn F. Savit, Reg. No. 37,437

Name of Applicant, Assignee or Registered Representative


Signature

July 9, 2003

Date of Signature

SUBMISSION OF FORMAL DRAWINGS

Commissioner for Patents
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Attention: Official Draftsperson

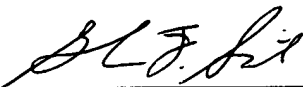
Dear Sir:

Enclosed for filing in the above-referenced patent application are fourteen (14)
sheets of formal drawings to be made of record in the present application in place of the original

drawings and which avoid the objections stated in PTO Form 948 attached to Paper No. 8.

Respectfully submitted,

FROMMER LAWRENCE & HAUG LLP
Attorneys for Applicants

By 
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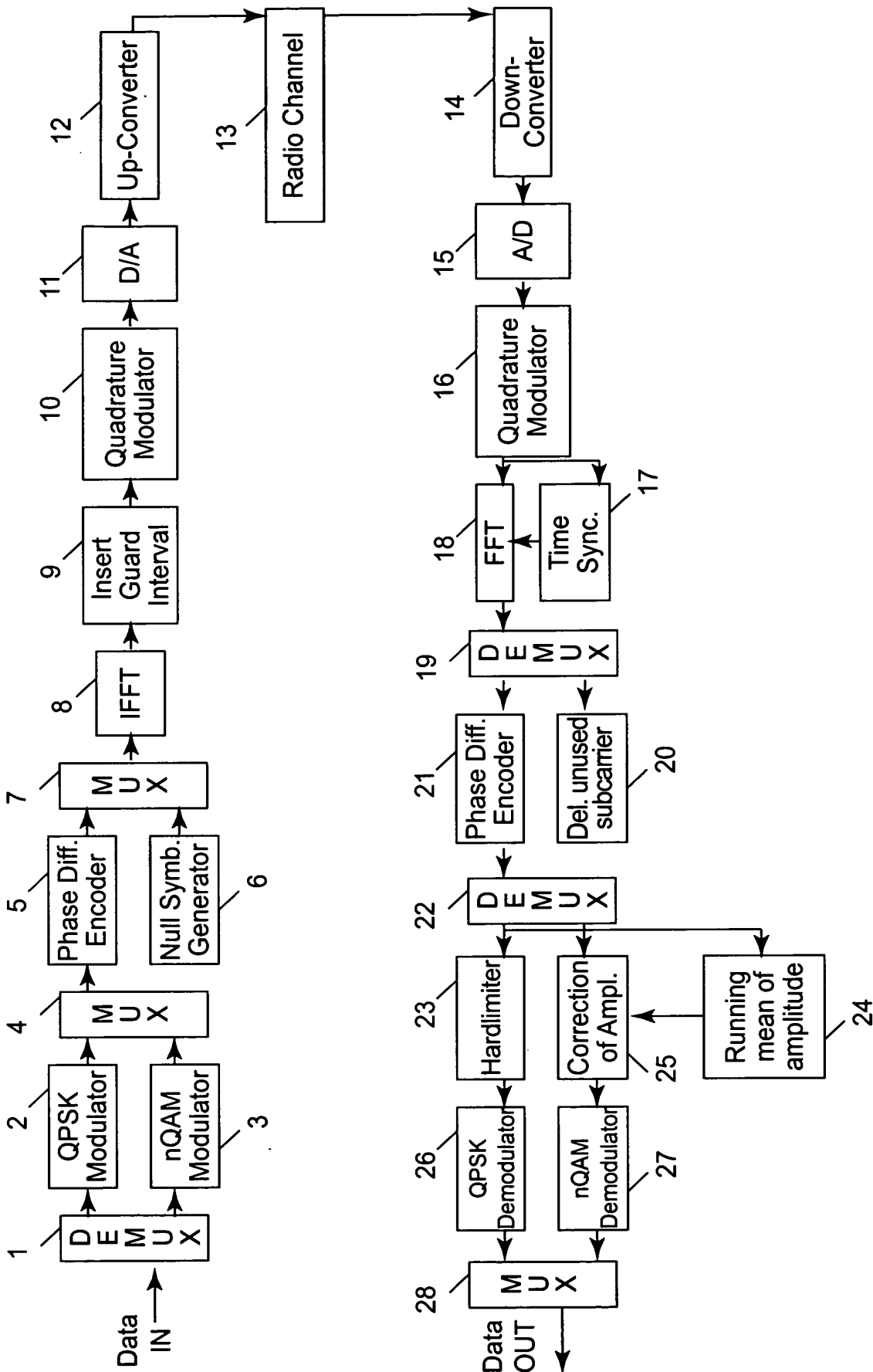
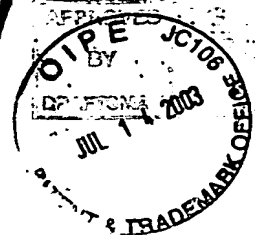


FIG. 1



Inventor: Besma Kraiem
 Title: QUASI-DIFFERENTIAL
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 METHOD FOR MULTI-AMPLITUDE DIGITAL MODULATED
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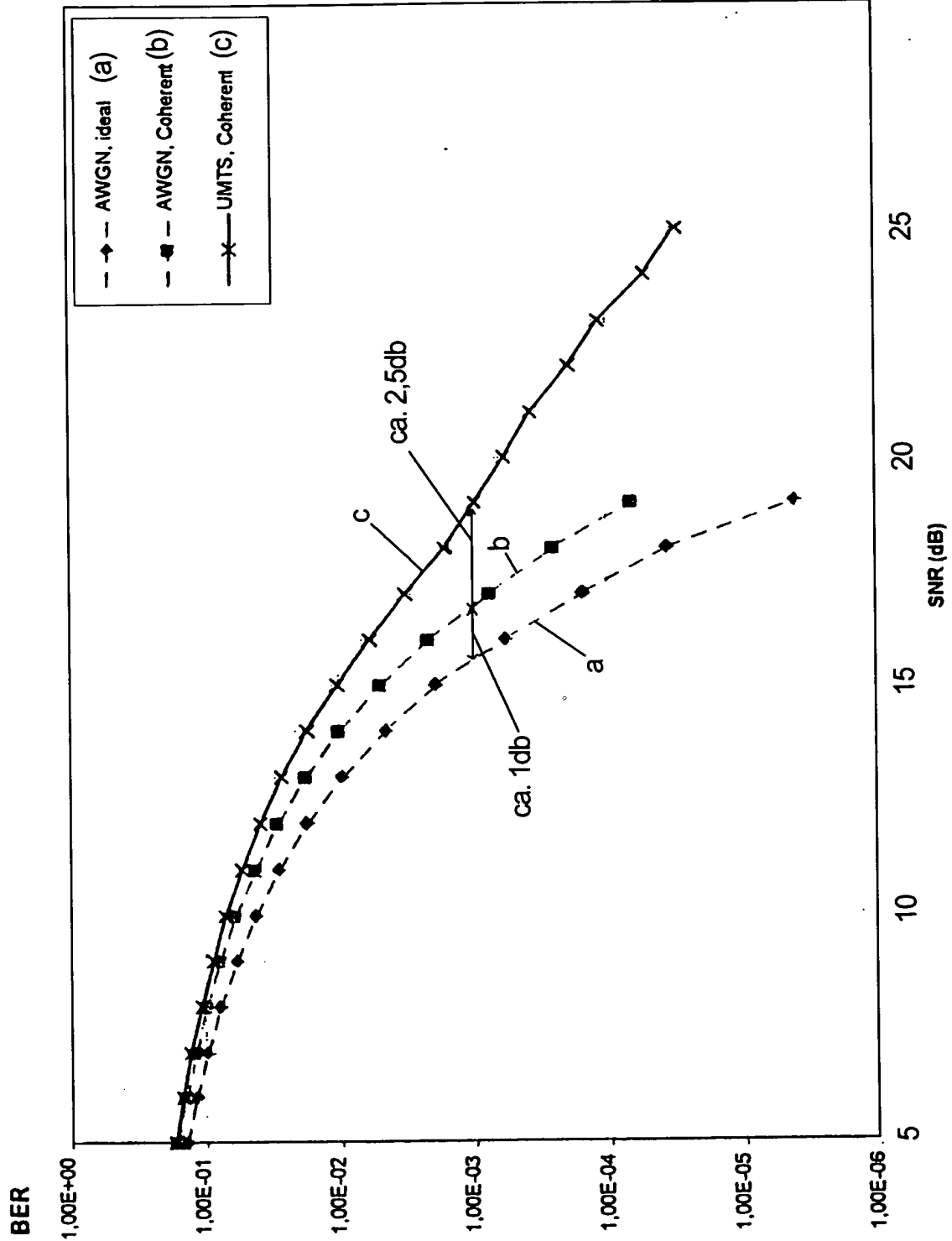
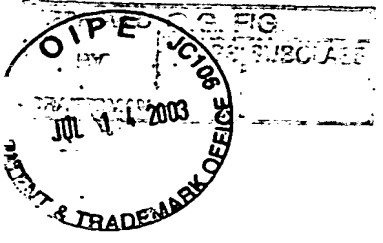
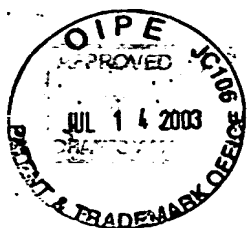

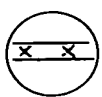


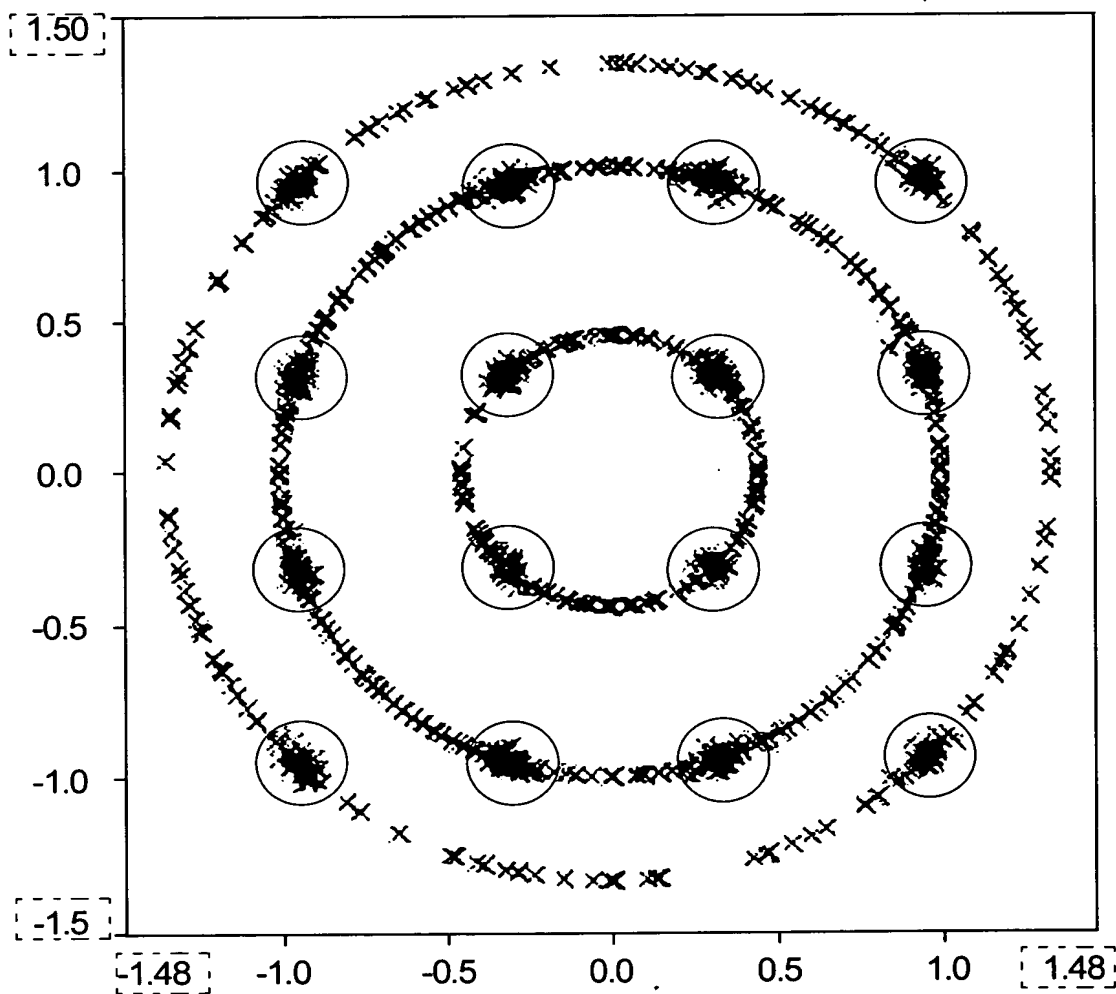
FIG. 2



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 16QAM Symbols
 16QAM Symbols after
Differential Encoding

16QAM Signal before and after Diff. Encoding
Q-Values



I-Values

FIG. 3

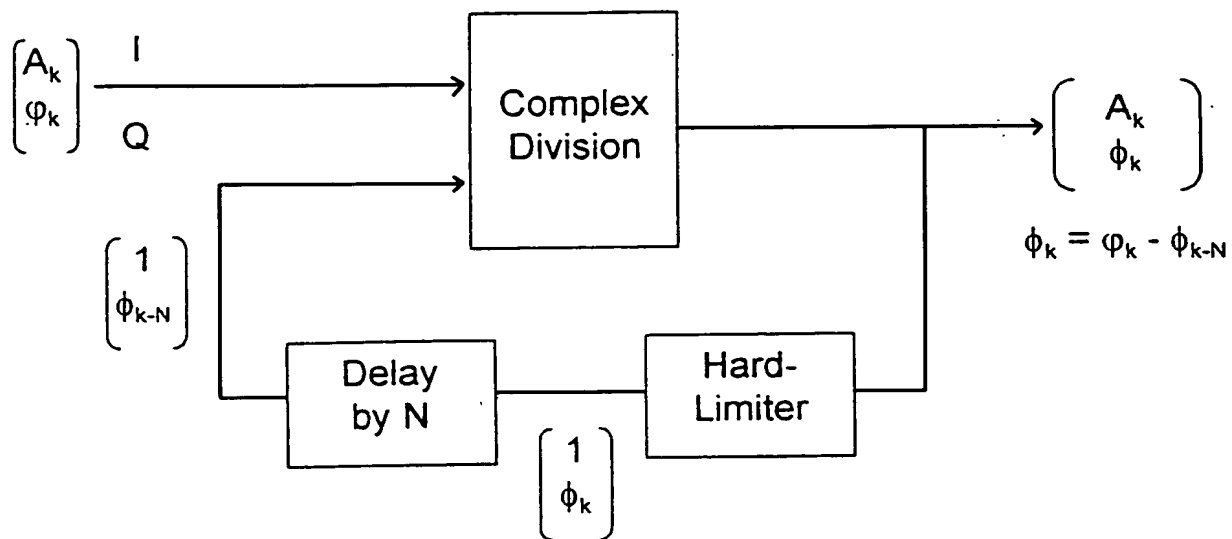
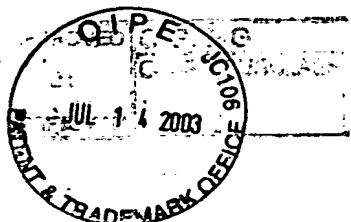


FIG. 4

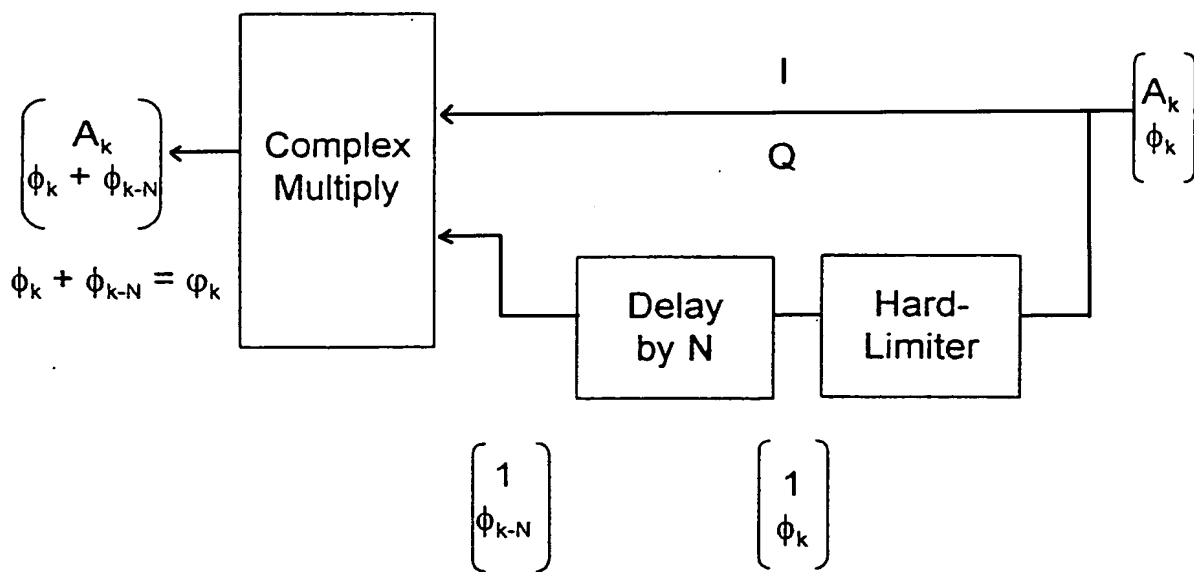
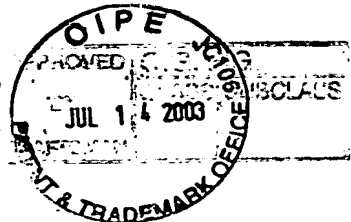


FIG. 5



Inventor: Besma Kraiem
Title: CSI-DIFFERENTIAL
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METHOD FOR MULTI-AMPLITUDE DIGITAL MODULATED
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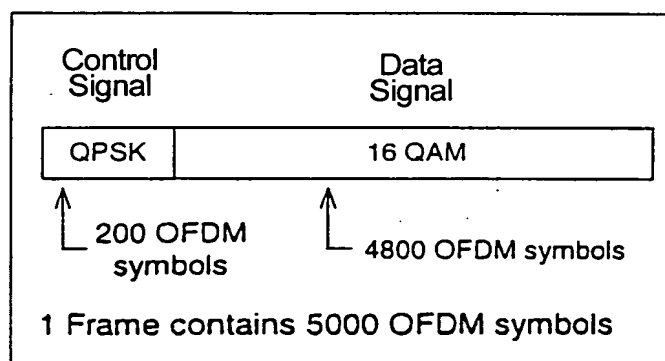


FIG. 6

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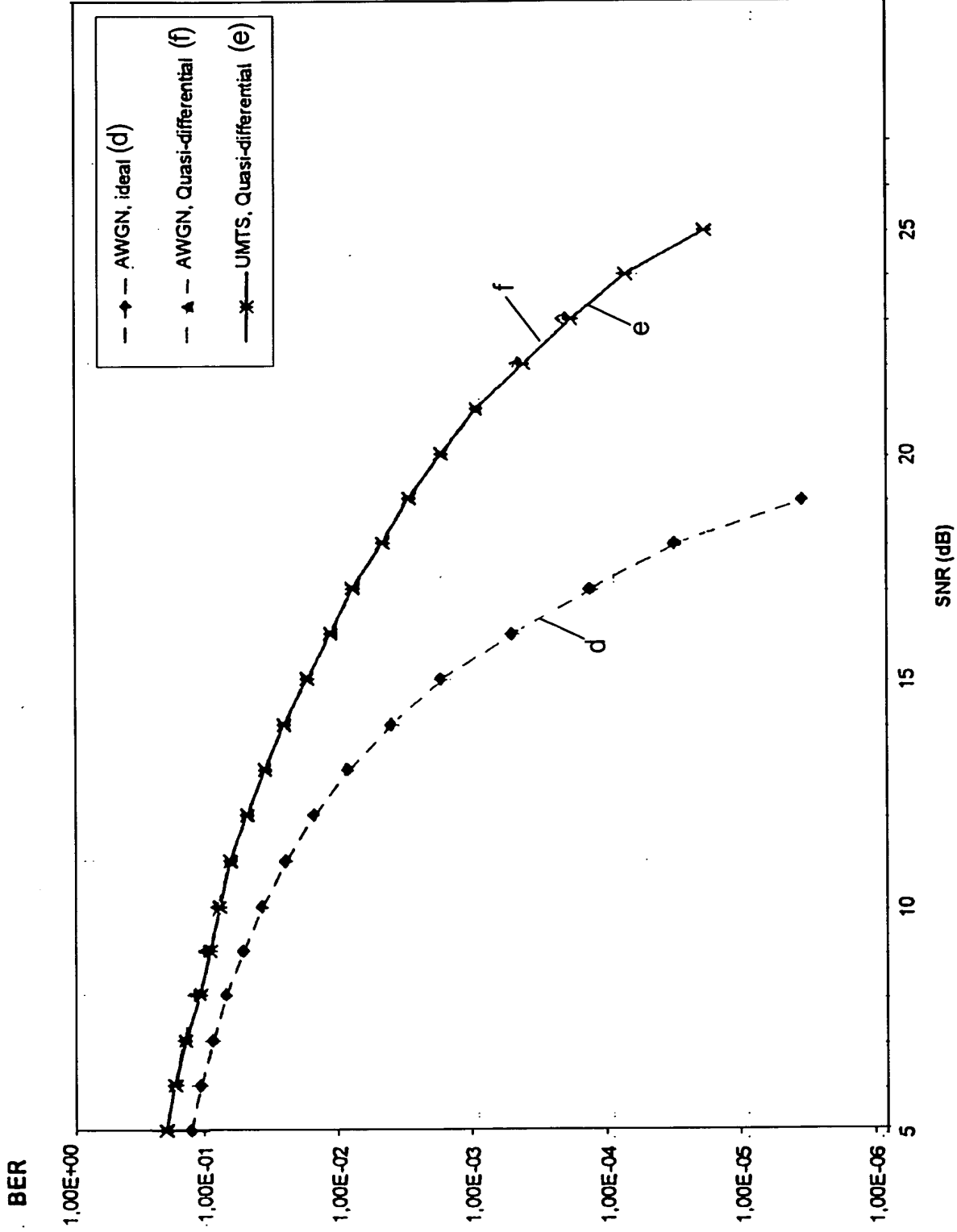
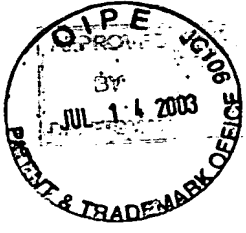


FIG. 7





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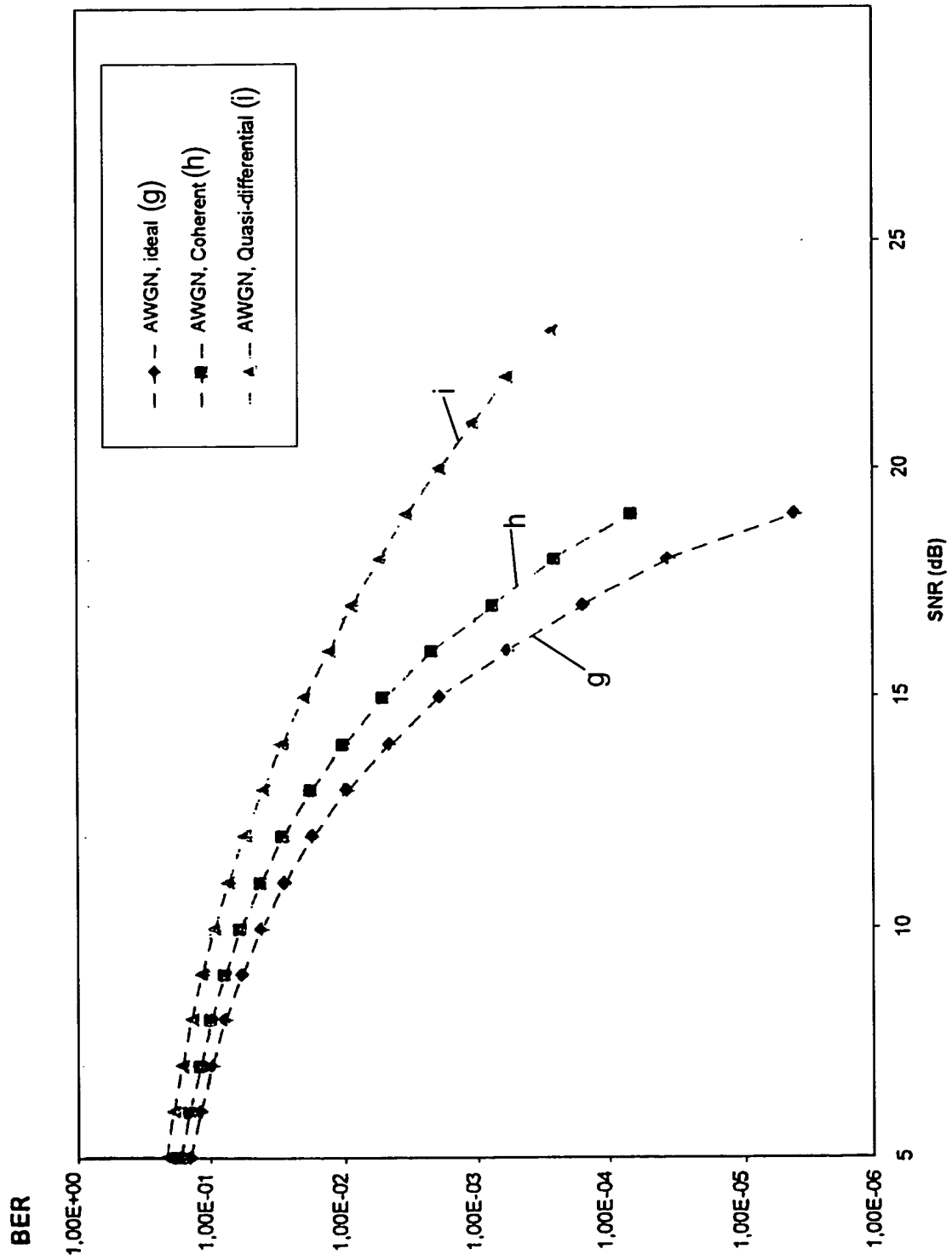


FIG. 8

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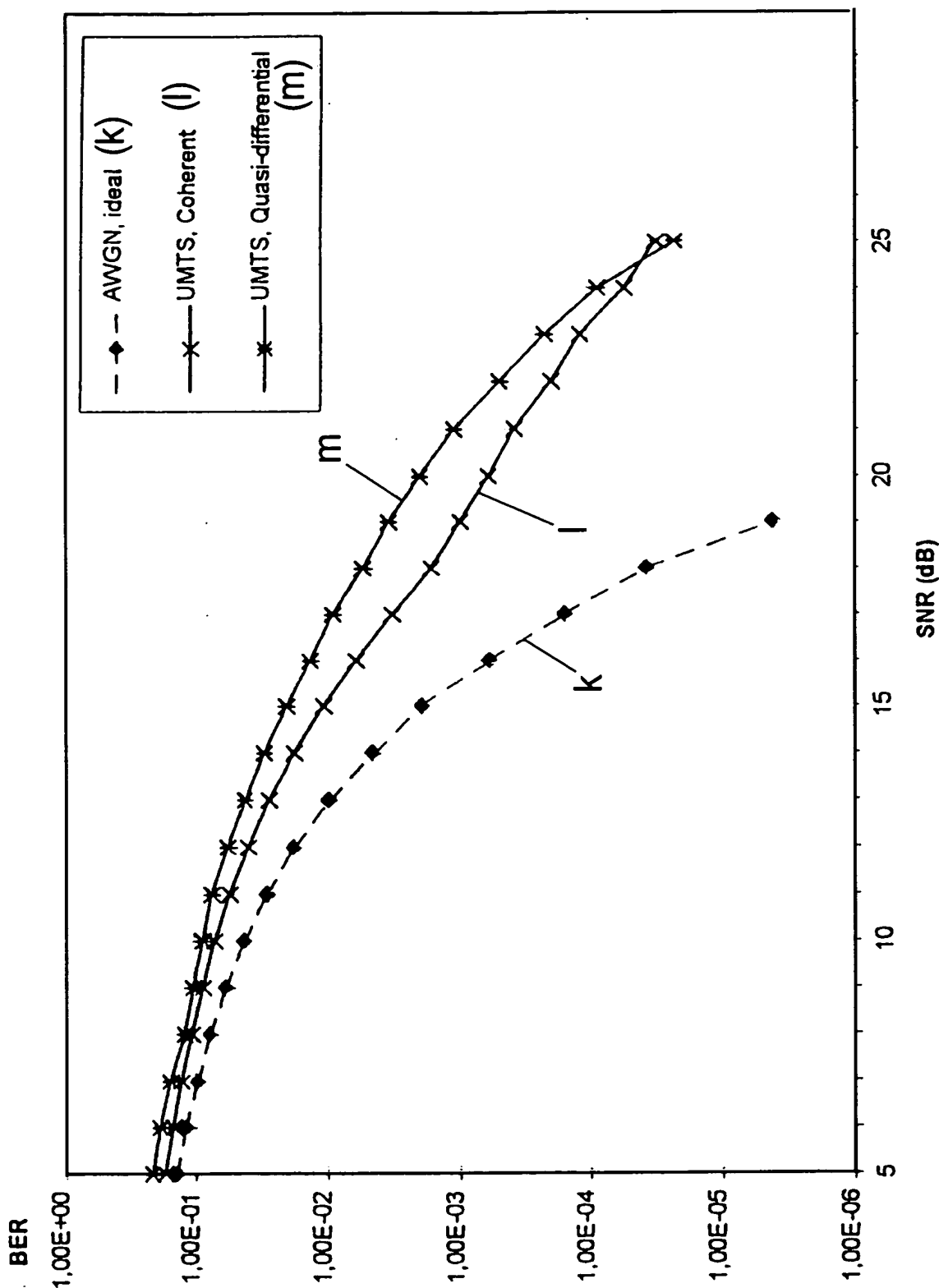


FIG. 9



Inventor: Bisma Kraiem
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Received QPSK Signal in Multipath Channel

Q-Values

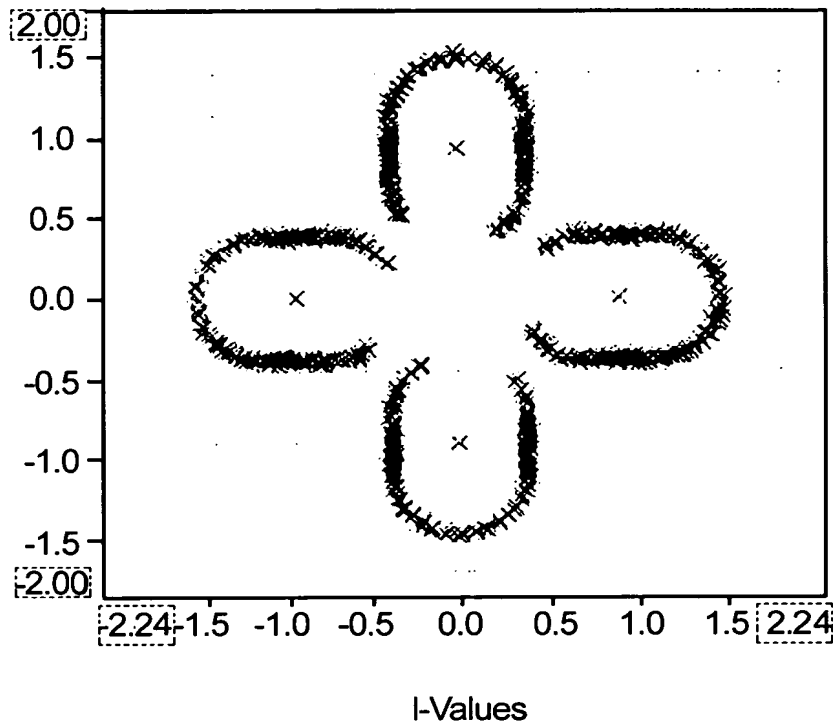
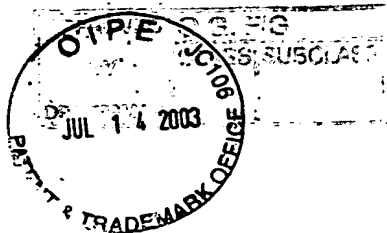


FIG. 10A



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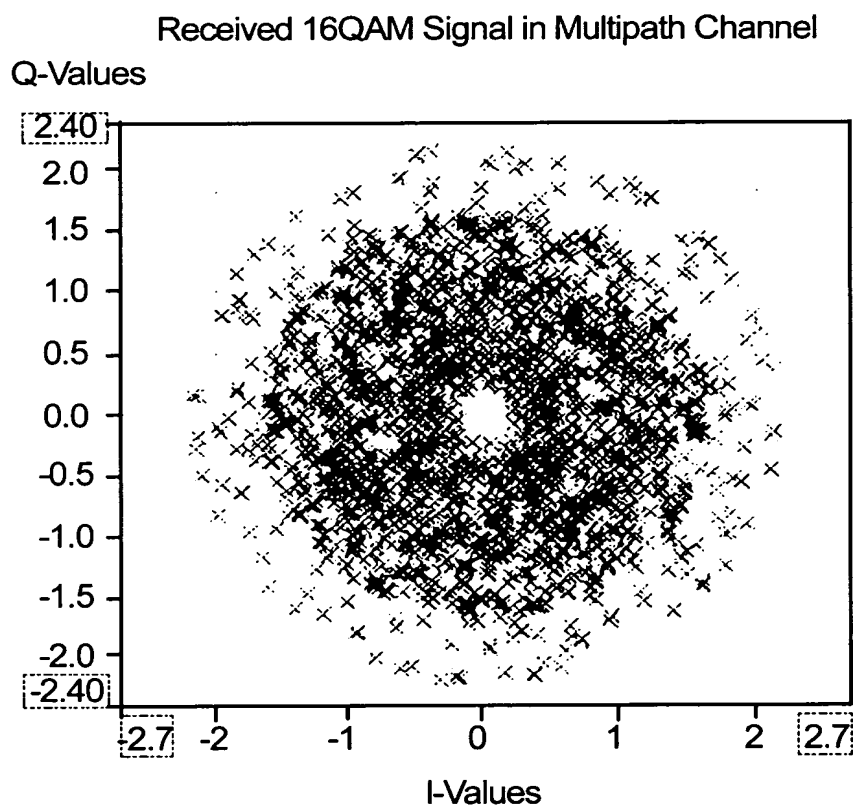


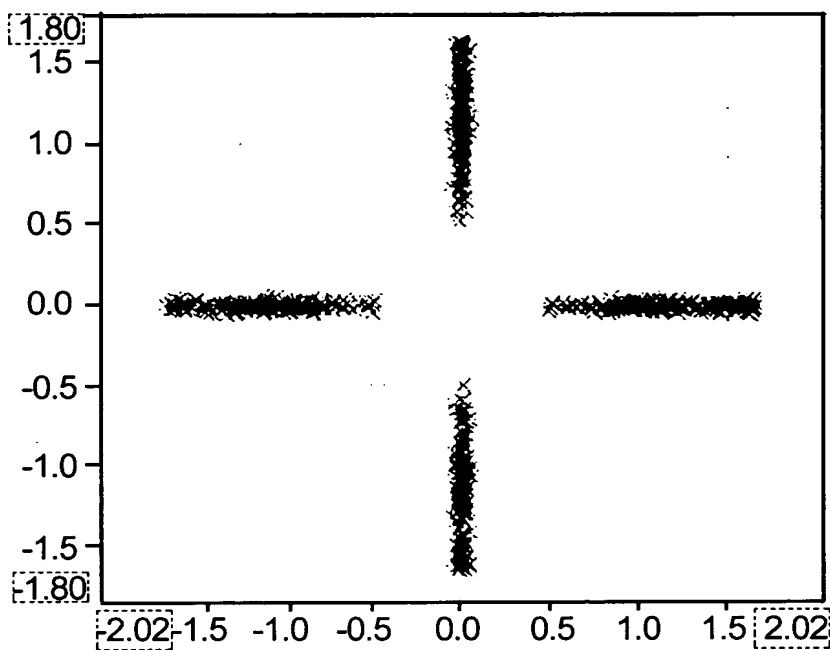
FIG. 10B



Inventor: Bisma Kraiem
TITLE: QUASI-DIFFERENTIAL
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Received QPSK Signal after Diff. Phase Decoding

Q-Values



I-Values

FIG. 10C



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Received 16QAM Signal after Diff. Phase Decoding

Q-Values

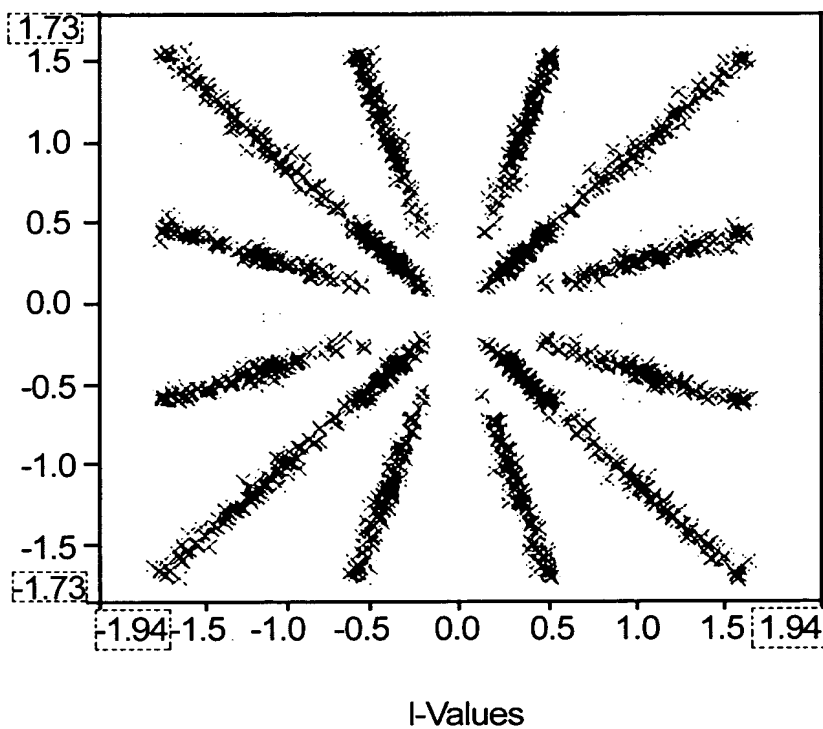
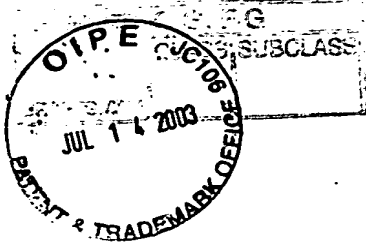


FIG. 10D



Inventor: Bisma Kraiem
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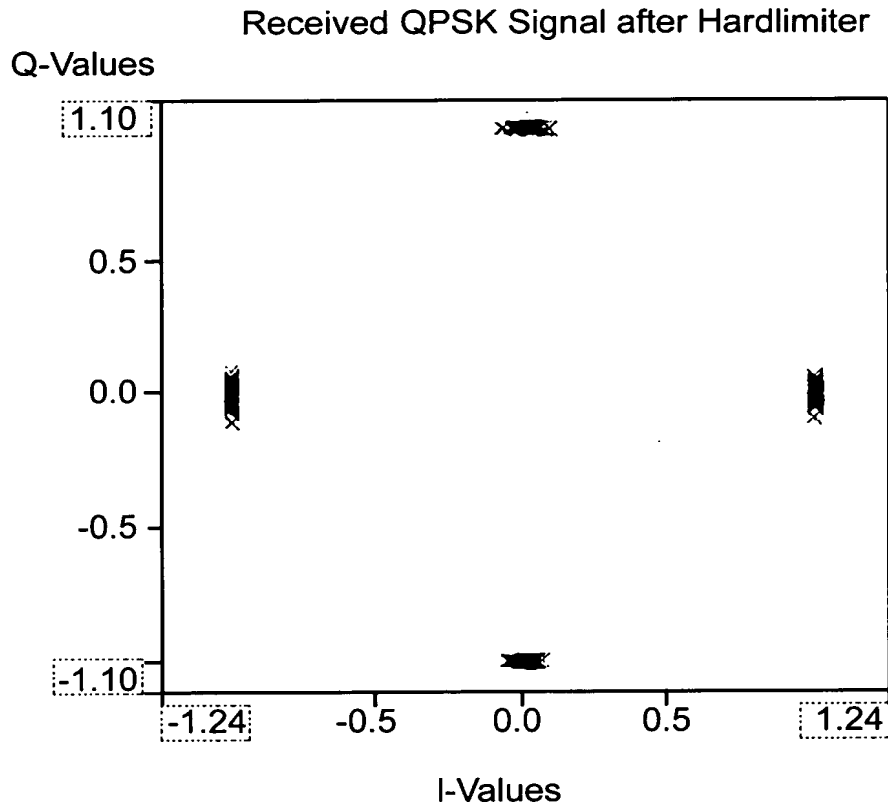
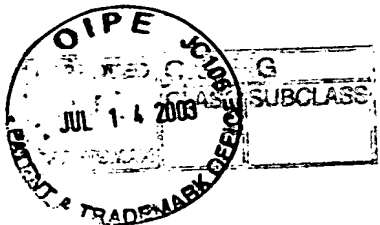


FIG. 10E



Inventor: Besma Kraiem
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Received 16QAM Signal after amplitude correction
Q-Values

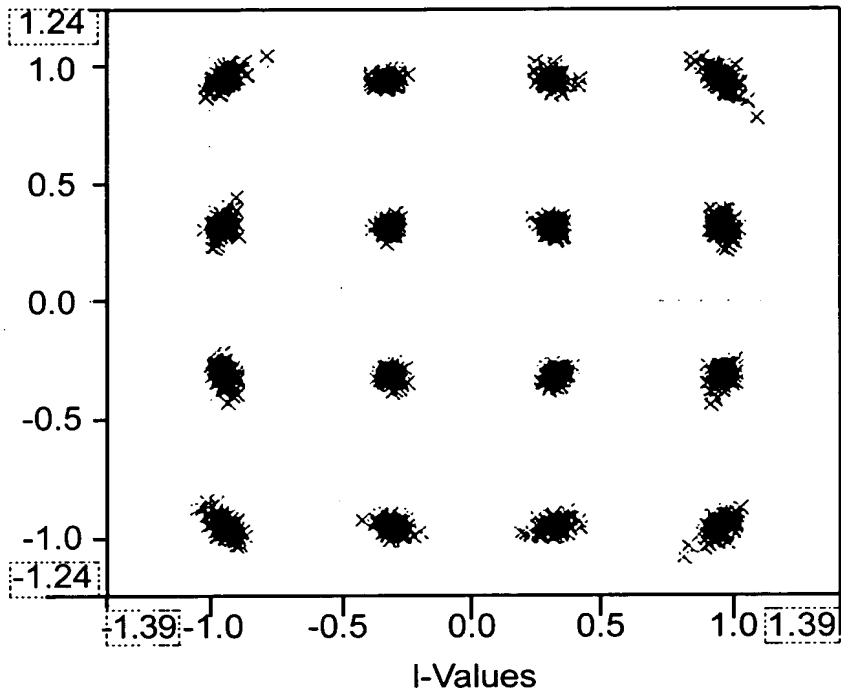


FIG. 10F